Data-Driven Real-Time Wellbore Flow Monitoring Using Hybrid Distributed Acoustic and Temperature Sensing
• Develop a platform for prognostic prediction of flow regime/profile in the wellbore from the subsurface data measurement including fiber optic sensors, and pressure/temperature measurements.

• Partner companies could test sensors and optical equipment using the developed highly equipped flow loops, under the production conditions assigned by major operators.

• Integrated completion/DHM program seeks to develop state of the art AI/ML technologies to reduce environmental footprint of thermal wells taking into account of downhole information, intergranular mechanics, erosion/scaling characteristics, well completion/production strategy, and reservoir characteristics.
• RGL is a privately-owned international oil and gas engineering, manufacturing, and service company specializing in sand control and flow control technologies and solutions.
• The company has a worldwide footprint, with manufacturing locations in Canada, the United States, Colombia, and Oman, as well as licensed partners in Scotland and Dubai.
• RGL has invested significantly in R&D projects internally and via joint projects with 14 professors worldwide.
• +30 patents and +150 highly prestigious research papers published.
Proposal: Objective & Deliverables

- Develop a wellbore hydraulic monitoring system to better understand the complex flow dynamics in a wellbore and use real-time monitoring for decision making to minimize energy consumption, reduce GHG emissions, maintain well integrity, optimize completion designs, and simplify production operations.
- Data-driven DAS and DTS software combined with reservoir simulator and wellbore hydraulic simulator is the main deliverable.
- Flow regime, flow velocity, and sand ingress along the horizontal and vertical wells is predicted using the developed software/database.
• **RGL’s DHM project uses a wellbore simulator flow loop equipped with optical sensors and transducers.**
Proposal: Outcome

**Downhole/Lab DAS/DTS System**
Continuous implementation of the DHM system and wellbore management will result in reservoir conformance and improved productivity with less GHG emission and energy/water consumption.

**Flow Regime, Velocity, Pressure Temperature along the Well**

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